

L Number	Hits	Search Text	DB	Time stamp
1	254	selectively with depositing same silicide	USPAT; US-PGPUB	2003/03/05 16:24
2	94	(selectively with depositing same silicide) and substrate and (field adj oxide)	USPAT; US-PGPUB	2003/03/05 16:41
3	116	selectively with depositing same silicide	EPO; JPO; DERWENT; IBM_TDB	2003/03/05 16:24
4	12	(selectively with depositing same silicide) and substrate and (field adj oxide)	EPO; JPO; DERWENT; IBM_TDB	2003/03/05 16:25
5	4	((selectively with depositing same silicide) and substrate and (field adj oxide)) and (tetrahalide or subhalide)	USPAT; US-PGPUB	2003/03/05 16:42
6	7	(selectively with depositing same silicide) and (tetrahalide or subhalide)	USPAT; US-PGPUB	2003/03/05 16:44
7	3	((selectively with depositing same silicide) and (tetrahalide or subhalide)) not (((selectively with depositing same silicide) and substrate and (field adj oxide)) and (tetrahalide or subhalide))	USPAT; US-PGPUB	2003/03/05 16:42
8	0	(selectively with depositing same silicide) and (tetrahalide or subhalide)	EPO; JPO; DERWENT; IBM_TDB	2003/03/05 16:44

US-PAT-NO: 3801365

DOCUMENT-IDENTIFIER: US 3801365 A

TITLE: METHOD FOR PRODUCING AN ELECTRICAL DEVICE

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Generally, those metal halides are preferred which are capable of forming a subhalide, though with the addition of elementary halogen to the mixture also such metal halides may be used, which do not form stable subhalides. In either case, the reaction temperature should not be high enough to permit the competing reaction between the halogen and hydrogen, with the formation of the respective hydrogen halides, to prevail.

Other metal halides, which may be used in the invention include tungsten and titanium halides. For operativeness, the metal halides should be volatile and capable of forming subhalide compounds similar as set out hereinbefore for molybdenum. The metal should under the reaction conditions employed in each case also be capable of forming silicides with the silicon substrate or the corresponding metal compounds with the elements making up any other useful non-oxygenated or otherwise reactive electrically resistive material.

Sometimes, it is also possible to use the halides of such metals which are not capable of forming stable subhalides. In this case, it may be desirable to add one or more halogens to the reaction mixture, as may be done also in the case of the molybdenum reaction described above, for further modification of the

reaction. The term subhalide as used herein applies to halide compounds of metals which contain chemically bound halogen atoms in a number lower than corresponds to the highest available valency of the metal.

The foregoing description of the method and devices of the invention is merely by way of example. Other devices may be designed and made in any other desired manner, using the basic concepts of the invention of selectively depositing a molybdenum silicide ohmic contact, having a gradient of strata of differing silicon content as has been set out herebefore. The invention has been described on the basis of molybdenum and silicon as the reactants in the reaction. As stated, other metals, such as tungsten may be used, and the method may be successfully practiced with substrates of semiconductor and insulator materials other than silicon.

the step of contacting said surface with a mixture comprising a hydrogen reducible metal halide, which is capable of forming at least one subhalide, said mixture comprising further an amount of gaseous hydrogen, which is insufficient for the complete reduction of said metal halide to the metallic form, and